

**REMARKS**

The Office Action dated February 26, 2004, has been received and carefully considered. In this response, claims 42-46 have been added and claims 1, 28, 31, and 36 have been amended. Entry of added claims 42-46 and the amendments to claims 1, 28, 31, and 36 is respectfully requested. Reconsideration of the outstanding rejections in the present application is also respectfully requested based on the following remarks.

Applicants note with appreciation the indication on page 8 of the Office Action that claim 14 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicants have opted to defer rewriting the above-identified claim in independent form pending reconsideration of the arguments presented below with respect to the rejected independent claims.

At this point it should be noted that claims 42-46 have been added to cover additional features supported by the specification of the present application.

I. THE ANTICIPATION REJECTION OF CLAIMS 1, 15-19, 28-32, 36-41

On pages 2-5 of the Office Action, claims 1, 15-19, 28-32, and 36-41 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hembree (U.S. Patent No. 5,783,461). This rejection is hereby respectfully traversed with amendment.

Under 35 U.S.C. § 102, the Patent Office bears the burden of presenting at least a prima facie case of anticipation. In re Sun, 31 USPQ2d 1451, 1453 (Fed. Cir. 1993) (unpublished). Anticipation requires that a prior art reference disclose, either expressly or under the principles of inherency, each and every element of the claimed invention. Id. "In addition, the prior art reference must be enabling." Akzo N.V. v. U.S. International Trade Commission, 808 F.2d 1471, 1479, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987). That is, the prior art reference must sufficiently describe the claimed invention so as to have placed the public in possession of it. In re Donohue, 766 F.2d 531, 533, 226 USPQ 619, 621 (Fed. Cir. 1985). "Such possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his own knowledge to make the claimed invention." Id.

Regarding independent claims 1, 28, 31, and 36, the Examiner asserts that Hembree teaches the present invention as claimed. However, the Examiner also acknowledges that Hembree

fails to disclose an attachment portion adapted to be directly coupled to a circuit board.

Independent claims 1, 28, 31, and 36 have been amended to recite an attachment portion adapted to be directly coupled to a circuit board. Accordingly, independent claims 1, 28, 31, and 36 should now be allowable.

Claims 15-19, 29-32, and 37-41 are dependent upon independent claims 1, 28, 31, and 36, respectively. Thus, since independent claims 1, 28, 31, and 36 should be allowable as discussed above, claims 15-19, 29-32, and 37-41 should also be allowable at least by virtue of their dependency on independent claims 1, 28, 31, and 36, respectively. Moreover, these claims recite additional features which are not claimed, disclosed, or even suggested by the cited references taken either alone or in combination, as discussed in the previously filed responses to the Office Actions dated July 17, 2002, and December 24, 2002.

In view of the foregoing, it is respectfully requested that the aforementioned anticipation rejection of claims 1, 15-19, 28-32, and 36-41 be withdrawn.

## II. THE OBVIOUSNESS REJECTION OF CLAIMS 2-5 AND 26

On pages 6-7 of the Office Action, claims 2-5 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over

Hembree (U.S. Patent No. 5,783,461) in view of Takeuchi et al. (U.S. Patent Application Publication No. US2002/0079571). This rejection is hereby respectfully traversed.

As stated in MPEP § 2143, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Also, as stated in MPEP § 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The mere fact that references can be combined or

modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Further, as stated in MPEP § 2143.01, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). That is, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970). Additionally, as stated in MPEP § 2141.02, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Finally, if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

The Examiner asserts that claims 2-5 and 26 would have been obvious in view Hembree and Takeuchi et al.

Claims 2-5 and 26 are dependent upon independent claim 1. Thus, since independent claim 1 should be allowable as discussed above, claims 2-5 and 26 should also be allowable at least by

virtue of their dependency on independent claim 1. Moreover, these claims recite additional features which are not claimed, disclosed, or even suggested by the cited references taken either alone or in combination, as discussed in the previously filed responses to the Office Actions dated July 17, 2002, and December 24, 2002.

In view of the foregoing, it is respectfully requested that the aforementioned obviousness rejection of claims 2-5 and 26 be withdrawn.

### III. THE OBVIOUSNESS REJECTION OF CLAIM 6

On page 7 of the Office Action, claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Hembree (U.S. Patent No. 5,783,461) in view of Takeuchi et al. (U.S. Patent Application Publication No. US2002/0079571) and further in view of Chan et al. (U.S. Patent No. 6,349,032). This rejection is hereby respectfully traversed.

The Examiner asserts that claim 6 would have been obvious in view Hembree, Takeuchi et al., and Chan et al..

Claim 6 is dependent upon independent claim 1. Thus, since independent claim 1 should be allowable as discussed above, claim 6 should also be allowable at least by virtue of its dependency on independent claim 1. Moreover, this claim recites

additional features which are not claimed, disclosed, or even suggested by the cited references taken either alone or in combination, as discussed in the previously filed responses to the Office Actions dated July 17, 2002, and December 24, 2002.

In view of the foregoing, it is respectfully requested that the aforementioned obviousness rejection of claim 6 be withdrawn.

IV. THE OBVIOUSNESS REJECTION OF CLAIMS 22-24

On pages 7-8 of the Office Action, claims 22-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hembree (U.S. Patent No. 5,783,461) in view of Chan et al. (U.S. Patent No. 6,349,032). This rejection is hereby respectfully traversed.

The Examiner asserts that claims 22-24 would have been obvious in view Hembree and Chan et al..

Claims 22-24 are dependent upon independent claim 1. Thus, since independent claim 1 should be allowable as discussed above, claims 22-24 should also be allowable at least by virtue of their dependency on independent claim 1. Moreover, these claims recites additional features which are not claimed, disclosed, or even suggested by the cited references taken either alone or in combination, as discussed in the previously

filed responses to the Office Actions dated July 17, 2002, and December 24, 2002.

In view of the foregoing, it is respectfully requested that the aforementioned obviousness rejection of claims 22-24 be withdrawn.

V. THE RESTRICTION OF CLAIMS 7-13, 20, 21, 25, 27, 34, AND 35

Applicants respectfully submit that independent claim 1 is generic to dependent claims 7-13, 20, 21, 25, and 27, and that independent claim 31 is generic to dependent claims 34 and 35. Thus, Applicants respectfully submit that dependent claims 7-13, 20, 21, 25, 27, 34, and 35 should not be restricted from consideration in the present application.

VI. CONCLUSION

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.



To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0206, and please credit any excess fees to the same deposit account.

Respectfully submitted,

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**APPENDIX A**

1 (Currently Amended). An integrated circuit (IC) cover comprising:

a plate portion;

an attachment portion adapted to be directly coupled to a circuit board; and

a spring portion coupled to the plate portion and to the attachment portion ~~such that the spring portion is in a non-relaxed state when the attachment portion is coupled to the circuit board.~~

2 (Original). The IC cover of claim 1 wherein the IC cover is unitarily molded of a polymer material.

3 (Original). The IC cover of claim 2 wherein the polymer material has a thermal conductivity of at least 10 watts/meter Kelvin.

4 (Original). The IC cover of claim 2 further comprising:  
a heat sink portion coupled to the plate portion.

5 (Original). The IC cover of claim 4 wherein the heat sink portion includes extended surfaces.

6 (Original). The IC cover of claim 5 wherein the extended surfaces include fins.

7 (Withdrawn). The IC cover of claim 1 wherein the attachment portion comprises:

a retainer having a first retainer portion and a second retainer portion, the retainer defining a channel between the first retainer portion and the second retainer portion, the first retainer portion terminating in a first barb and the second retainer portion terminating in a second barb.

8 (Withdrawn). The IC cover of claim 1 wherein the spring portion has a cross section comprising a V-shaped portion.

9 (Withdrawn). The IC cover of claim 8 wherein the spring portion has a cross section comprising a zig-zag-shaped portion.

10 (Withdrawn). The IC cover of claim 1 wherein the spring portion has a cross section comprising a U-shaped portion.

11 (Withdrawn). The IC cover of claim 1 wherein the spring portion has a cross section comprising an arcuate portion.

12 (Withdrawn). The IC cover of claim 11 wherein the spring portion has a cross section comprising an S-shaped portion.

13 (Withdrawn). The IC cover of claim 1 wherein the spring portion has a cross section comprising a molded living hinge portion.

14 (Original). The IC cover of claim 1 wherein the spring portion has a cross section comprising a molded cantilever hinge portion.

15 (Original). The IC cover of claim 1 wherein the spring portion is disposed at an end of the plate portion.

16 (Original). The IC cover of claim 1 wherein the spring portion includes a plurality of individual spring elements, wherein a first one of the plurality of individual spring elements is disposed at a first end of the plate portion and a second one of the plurality of individual spring elements is disposed at a second end of the plate portion.

17 (Original). The IC cover of claim 16 wherein the plurality of

individual spring elements are disposed around a perimeter of the plate portion.

18 (Original). The IC cover of claim 16 wherein at least one of the individual spring elements is maintained in a non-relaxed state.

19 (Original). The IC cover of claim 1 wherein the spring portion is disposed around the perimeter of the plate portion.

20 (Withdrawn). The IC cover of claim 1 wherein the spring portion forms a closed path around the perimeter of the plate portion.

21 (Withdrawn). The IC cover of claim 1 wherein the spring portion comprises a uniform diaphragm spring.

22 (Original). The IC cover of claim 1 further comprising:  
a heat sink portion coupled to the plate portion.

23 (Original). The IC cover of claim 22 wherein the heat sink portion includes extended surfaces.

24 (Original). The IC cover of claim 23 wherein the extended surfaces include fins.

25 (Withdrawn). The IC cover of claim 1 wherein the plate portion and the spring portion are unitarily formed of a metal material.

26 (Original). The IC cover of claim 1 wherein the attachment portion and the spring portion are unitarily molded of a polymer material.

27 (Withdrawn). The IC cover of claim 1 wherein the plate portion is formed to have an arcuate cross section so as to substantially equalize pressure exerted against a convex surface of the plate portion.

28 (Currently Amended). An integrated circuit (IC) cover comprising:

an attachment portion adapted to be directly coupled to a circuit board, wherein at least one die is coupled to the circuit board; and

a plate portion of flexible material coupled to the attachment portion, wherein the plate portion is formed so as to

exert pressure to the at least one die when the attachment portion is coupled to the circuit board.

29 (Original). The IC cover of claim 28 wherein the plate portion is formed so as to exert pressure to the at least one die in a direction toward the circuit board.

30 (Original). The IC cover of claim 29 further comprising:  
a spring portion coupling the attachment portion to the plate portion.

31 (Currently Amended). An integrated circuit (IC) assembly comprising:

a circuit board;

at least one first die disposed on a first surface of the circuit board; and

a cover including:

a plate portion disposed so as to cover the at least one first die;

an attachment portion adapted to be directly coupled ~~attached~~ to the circuit board; and

a spring portion coupled to the plate portion and to the attachment portion ~~such that the spring portion is in a non-~~

~~relaxed state when the attachment portion is coupled to the  
circuit board.~~

32 (Original). The IC assembly of claim 31 wherein the spring portion exerts pressure between the plate portion and the at least one first die.

33 (cancelled).

34 (Withdrawn). The IC assembly of claim 31 further comprising:

at least one second die disposed on a second surface of the circuit board.

35 (Withdrawn). The IC assembly of claim 34 further comprising:

a second cover attached to the circuit board, the second cover covering the at least one second die.

36 (Currently Amended). An integrated circuit (IC) cover comprising:

a plate portion having a plurality of edges;

a plurality of attachment portions adapted to be directly



coupled to a circuit board; and

a plurality of spring portions coupled to the plate portion and to the plurality of attachment portions, wherein each of the spring portions is oriented along a direction of a corresponding one of the plurality of edges ~~such that at least one of the plurality of spring portions is in a non-relaxed state when at least one of the plurality of attachment portions is coupled to the circuit board.~~

37 (Original). The IC cover of claim 36 wherein center lines of the plurality of spring portions are oriented so as to be non-radial relative to a centroid of the plate portion.

38 (Original). The IC cover of claim 36 wherein each of center lines of the plurality of spring portions are oriented approximately tangentially in relation to a corresponding one of the plurality of edges.

39 (Original). The IC cover of claim 36 wherein the plurality of spring portions are oriented in a similar rotational direction with respect to a centroid of the plate portion.

40 (Original). The IC cover of claim 36 wherein the plurality of

spring portions are configured to cooperatively accommodate displacement of the plate portion from a relaxed position.

41 (Previously Presented). The IC cover of claim 36 wherein at least one of the plurality of spring portions is maintained in a non-relaxed state when at least one of the plurality of attachment portions is coupled to a the circuit board such that the plate portion overlies at least one IC.

42 (New). The IC assembly of claim 32 wherein, when the attachment portion is coupled to the circuit board, the spring portion is in a non-relaxed state.

43 (New). An integrated circuit (IC) cover comprising:

a plate portion;

an attachment portion disposed around at least a portion of a periphery of the plate portion; and

a spring portion coupled between the plate portion and the attachment portion.

44 (New). An integrated circuit (IC) cover comprising:

an attachment portion adapted to be coupled to a circuit board, wherein a die is coupled to the circuit board; and

a plate portion of flexible material disposed substantially internal to the attachment portion and coupled thereto, wherein the plate portion is formed so as to exert pressure to the die when the attachment portion is coupled to the circuit board.

45 (New). An integrated circuit (IC) assembly comprising:

a circuit board;

a die disposed on a first surface of the circuit board; and

a cover including:

a plate portion disposed so as to cover the die;

an attachment portion disposed around at least a portion of a periphery of the plate portion; and

a spring portion coupled between the plate portion and the attachment.

46 (New). An integrated circuit (IC) cover comprising:

a plate portion having a plurality of edges;

a plurality of attachment portions disposed around at least a portion of the edges of the plate portion; and

a plurality of spring portions coupled between the plate portion and the plurality of attachment portions, wherein each of the spring portions is oriented along a direction of a corresponding one of the plurality of edges.